

# Amendment

## Amendments to the Claims

Please replace all prior versions and listing of claims in the application with the following listing of claims.

### Listing of Claims:

1-2. (Cancelled)

3. (Currently Amended) The method of claim [[2]] 4, further including:  
collecting dependency data from a plurality of networked resources  
including the first managed networked resource; and  
storing the dependency data in a repository centralized within a distributed  
systems management environment, wherein the centralized repository is stored  
in the software manager of the distributed systems management environment  
separately from other configuration data associated with the plurality of  
networked resources.

4. (Currently Amended) A computer-based method for communicating  
dependency data specifying dependency relationships between networked  
resources ~~network devices~~, including:  
monitoring a first managed networked resource ~~network device~~ via a  
software agent executing on the first managed networked resource ~~network~~  
~~device~~, wherein the software agent is managed by a software manager executing  
remotely from the first managed networked resource ~~network device~~;  
collecting, by the software agent executing on the first managed  
networked resource ~~network device~~, configuration data describing the first  
managed networked resource ~~network device~~, ~~wherein the configuration data is~~  
~~collected from communications between the first managed network device and~~  
~~one or more other managed network devices;~~

extracting, by the software agent executing on the first managed networked resource network device, dependency data from the configuration data, the dependency data specifying either provider or consumer dependency relationships between the first managed networked resource network device and the one or more other managed networked resources network devices, wherein said provider dependency relationship indicates that a problem at the first managed networked resource network device will propagate to the one or more other managed networked resources network devices, and said consumer dependency relationship indicates that a problem at the one or more other managed networked resources network devices will propagate to the first managed networked resource network device;

generating, at the first managed networked resource, a table that includes the extracted dependency data, wherein the table is stored separate from other configuration data associated with the first managed networked resource network device that has been collected by the software agent;

offering access to the extracted dependency data in the table generated at the first managed networked resource, the access being offered via a dependency interface of the software agent executing on the first managed networked resource, the dependency interface being an interface for and using a distributed systems management protocol; and

communicating the dependency data from the software agent to the software manager.

5. **(Original)** The method of claim 4, where the distributed systems management protocol is an open standard.
6. **(Original)** The method of claim 4, where the distributed systems management protocol is SNMP.
7. **(Currently Amended)** The method of claim 5, wherein offering access includes the software manager of a ~~distributed systems management software application~~ communicating across a network with the software agent using the

distributed systems management protocol.

8. **(Currently Amended)** The method of claim 7, wherein the software agent communicates with the software manager ~~of a distributed systems management software application~~ using the distributed systems management protocol to raise a trap based on the dependency data included in the table.

9. **(Currently Amended)** A computer-based method for distributed systems management, including:

monitoring a first managed network device with a first software agent executing on the first managed network device, wherein the software agent is managed by a software manager executing remotely from the first managed network device;

collecting, by the software agent executing on the first network device, configuration data describing the first managed network device, ~~wherein the configuration data is collected from communications between the first managed network device and a plurality of other network devices;~~

gathering, by the first software agent executing on the first managed network device, dependency data describing either a provider or a consumer dependency relationship between the first managed network device and one or more other network devices ~~a second network device~~, wherein said provider dependency relationship indicates that a problem at the first managed network device will propagate to the ~~second network device~~ one or more other network devices, and said consumer dependency relationship indicates that a problem at the ~~second network device~~ one or more other network devices will propagate to the first managed network device;

communicating, by the first software agent executing on the first managed network device, the dependency data gathered by the first software agent to the software manager;

processing, by the software manager, the gathered dependency data obtained from the first software agent to determine whether a provider or a consumer dependency relationship exists between the first managed network

device and a second network device; and

initiating, by the software manager first managed network device, a second software agent if a provider or a consumer dependency relationship exists between the first managed network device and the second network device ~~to monitor the second device based on the dependency data gathered by the first software agent~~, wherein the second software agent executes on and monitors the second network device; and

~~communicating the dependency data from the first software agent to the software manager.~~

**10.-11.(Cancelled)**

12. **(Withdrawn)** A computer-based method for formatting dependency information for display, including:

providing a display area having a linear border,

selecting a root managed device residing in a distributed network for display at a root distance from the border; and

displaying a non-root managed device having either a provider or a consumer dependency relationship with the root managed device, wherein said provider dependency relationship indicates that a problem at the non-root managed device will propagate to the root managed device, and said consumer dependency relationship indicates that a problem at the root managed device will propagate to the non-root managed device, and the dependency relationship has a length of at least one, the displaying including indenting the representation of the non-root managed device a predetermined distance away from the border, greater than the root distance and dependent upon the length of the dependency relationship.

13. **(Withdrawn)** The method of claim 12, wherein displaying further includes displaying a plurality of non-root managed devices in a tabular layout ordered according to a breadth-first search of devices joined by direct dependency

relationships, the search beginning with the root managed device.

14. **(Withdrawn)** The method of claim 13, wherein the breadth-first search is constrained to a predetermined depth.

15. **(Withdrawn)** The method of claim 12, wherein displaying further includes displaying a plurality of non-root managed devices in a tabular layout ordered according to a depth-first search of devices joined by direct dependency relationships, the search beginning with the root managed device.

16. **(Withdrawn)** The method of claim 15, wherein the depth-first search is constrained to a predetermined depth.

17. **(Withdrawn)** The method of claim 12, wherein the predetermined distance for any such non-root managed device in the display area is determined by multiplying the length times a base predetermined distance.

18. **(Currently Amended)** A computer-based method for collecting dependency data specifying dependency relationships between networked resources, the method including:

monitoring a plurality of managed networked resources via a software agent executing on each of the managed networked resources, wherein the plurality of software agents are managed by a software manager executing remotely from the plurality of managed networked resources;

gathering, by the plurality of software agents executing on the plurality of managed networked resources, configuration data describing the plurality of networked resources, ~~wherein the configuration data is collected from communications between the plurality of networked resources;~~

extracting, by the plurality of software agents, dependency data from the gathered configuration data, the dependency data including data specifying either provider or consumer dependency relationships ~~between the~~ associated with the plurality of managed networked resources, wherein said provider dependency relationship indicates that a problem at a first managed networked

resource will propagate to a second networked resource, and said consumer dependency relationship indicates that a problem at the second networked resource will propagate to the first managed networked resource;

communicating the dependency data extracted by the plurality of software agents from the plurality of software agents to the software manager; and

adding at least a portion of the dependency data extracted by the plurality of software agents to a central repository managed by the software manager ~~of a manager application~~, wherein the portion of the dependency data added to the central repository is stored in the central repository separately from other configuration data;

processing, by the software manager, the extracted dependency data obtained from the plurality of software agents to determine whether a provider or a consumer dependency relationship exists between at least one of the plurality of managed networked resources and one or more additional networked resources not included in the plurality of managed networked resources; and

initiating, by the software manager, management of the one or more additional networked resources not included in the plurality of managed networked resources if a provider or a consumer dependency relationship exists between at least one of the plurality of managed networked resources and the one or more additional networked resources.

**19.-21 (Cancelled)**

22. **(Currently Amended)** The method of claim 18, wherein the software manager ~~manager application~~ offers a client application access to the central repository, the access offered using a distributed systems management protocol.

23. **(Original)** The method of claim 22, wherein the distributed systems management protocol is SNMP.

**24.-25. (Cancelled)**

26. **(Currently Amended)** The article of claim ~~[[25]]~~ 27, further including instructions causing the machine to:

collect dependency data from a plurality of networked resources including the first networked resource; and

store the dependency data in a repository centralized within the software manager of a distributed systems management environment, wherein the centralized repository is stored in the software manager of the distributed systems management environment separately from other configuration data associated with the plurality of networked resources.

27. **(Currently Amended)** An article comprising a machine-readable storage medium that stores executable instructions to communicate dependency data specifying dependency relationships between networked resources ~~network devices~~, the instructions causing a machine to:

monitor a first managed networked resource ~~network device~~ via a software agent executing on the first managed networked resource ~~network device~~, wherein the software agent is managed by a software manager executing remotely from the first managed networked resource ~~network device~~;

collect, by the software agent executing on the first managed networked resource ~~network device~~, configuration data describing the first managed networked resource ~~network device~~, wherein the configuration data is collected from communications between the first managed networked resource ~~network device~~ and one or more other managed networked resources ~~network devices~~;

extract, by the software agent, dependency data from the configuration data, the dependency data specifying either provider or consumer dependency relationships between the first managed networked resource ~~network device~~ and the one or more other managed networked resources ~~network devices~~, wherein said provider dependency relationship indicates that a problem at the first managed networked resource ~~network device~~ will propagate to the one or more other managed networked resources ~~network devices~~, and said consumer

dependency relationship indicates that a problem at the one or more other managed networked resources ~~network devices~~ will propagate to the first managed networked resource ~~network device~~;

generate, at the first managed networked resource, a table that includes the extracted dependency data, wherein the table is stored separate from other configuration data associated with the first managed networked resource ~~network device~~ that has been collected by the software agent;

offer access to the extracted dependency data in the table generated at the first managed networked resource, the access being offered via a dependency interface of the software agent executing on the first managed networked resource, the dependency interface being an interface for a distributed systems management protocol ~~on the software agent~~; and

communicate the dependency data from the software agent to the software manager.

28. **(Currently Amended)** An article comprising a machine-readable storage medium that stores executable instructions to manage distributed systems, the instructions causing a machine to:

monitor a first managed network device with a first software agent executing on the first managed network device, wherein the software agent is managed by a software manager executing remotely from the first managed network device;

collect, by the software agent executing on the first managed network device, configuration data describing the first managed network device, ~~wherein the configuration data is collected from communications between the first managed network device and a second device~~;

gather, by the first software agent, dependency data describing either a provider or a consumer dependency relationship between the first managed network device and one or more other network devices ~~a second device~~, wherein said provider dependency relationship indicates that a problem at the first managed network device will propagate to the one or more network devices



~~second device~~, and said consumer dependency relationship indicates that a problem at the one or more network devices ~~second device~~ will propagate to the first managed network device;

communicate, by the first software agent executing on the first managed network device, the dependency data gathered by the first software agent to the software manager;

process, by the software manager, the gathered dependency data obtained from the first software agent to determine whether a provider or a consumer dependency relationship exists between the first managed network device and a second network device; and

initiate, by the software manager ~~first managed network device~~, a second software agent if a provider or a consumer dependency relationship exists between the first managed network device and a the second network device to monitor the second device based on the dependency data gathered by the first software agent, wherein the second software agent executes on and monitors the second network device; ~~and~~

~~communicate the dependency data from the first software agent to the software manager.~~

29. **(Withdrawn)** An article comprising a machine-readable storage medium that stores executable instructions to format dependency information for display, the instructions causing a machine to:

provide a display area having a linear border;

select a root managed device residing in a distributed network to display at a root distance from the linear border; and

display a non-root managed device having either a provider or a consumer dependency relationship with the root managed device, wherein said provider dependency relationship indicates that a problem at the non-root managed device will propagate to the root managed device, and said consumer dependency relationship indicates that a problem at the root managed device will propagate to the non-root managed device, and the dependency relationship has

a length of at least one, the displaying including indenting the representation of the non-root managed device a predetermined distance away from the linear border, greater than the root distance and dependent upon the length of the dependency relationship.

30. **(Withdrawn)** The article of claim 29, wherein the instructions causing a machine to display further include displaying a plurality of non-root managed devices in a tabular layout ordered according to a breadth-first search of devices joined by direct dependency relationships, the search beginning with the root managed device.

31. **(Withdrawn)** The article of claim 29, wherein the instructions causing a machine to display further include displaying a plurality of non-root managed devices in a tabular layout ordered according to a depth-first search of devices joined by direct dependency relationships, the search beginning with the root managed device.

32. **(New)** The method of claim 9, further comprising:  
adding the second software agent to an active agent list by the software manager, the active agent list maintained at the software manager; and  
classifying, by the software manager, the second network device as a second managed network device managed by the software manager.

33. **(New)** The method of claim 9, further comprising:  
determining, by the software manager, whether the second network device is a device that is managed by the software manager;  
initiating, by the software manager, a second software agent on the second network device if a provider or a consumer dependency relationship exists between the first managed network device and a second network device and if the second network device is a device that is not managed by the software manager.

34. **(New)** The method of claim 33, wherein the determining whether the second network device is a device managed by the software manager comprises determining whether the second software agent executing on the second network device is included in an active agent list maintained by the software manager.

35. **(New)** The method of claim 18, wherein initiating, by the software manager, management of the one or more additional networked resources further comprising:

initiating, by the software manager, one or more additional software agents at the one or more additional networked resources if a provider or a consumer dependency relationship exists between at least one of the plurality of managed networked resources and the one or more additional networked resources, wherein each of the one or more additional software agents execute on and monitor the corresponding one or more additional networked resources;

adding the one or more additional software agents to an active agent list by the software manager, the active agent list maintained at the software manager; and

classifying, by the software manager, the one or more additional networked resources as one or more additional managed networked resources managed by the software manager.